SSA-R1003
SSA-R1103

# RFID Reader

## user manual

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# safety information

**CAUTION**

RISK OF ELECTRIC SHOCK.
DO NOT OPEN

**CAUTION**: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.

This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING**

- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

**WARNING**

1. Be sure to use only the standard adapter that is specified in the specification sheet.
   Using any other adapter could cause fire, electrical shock, or damage to the product.
2. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
3. Do not connect multiple controllers to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.
4. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
5. When installing the controller, fasten it securely and firmly. The fall of controller may cause personal injury.
6. Do not place conductive objects (e.g. screwdrivers, coins, metal parts, etc.) or containers filled with water on top of the controller. Doing so may cause personal injury due to fire, electric shock, or falling objects.
7. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock.
8. If any unusual smells or smoke come from the unit, stop using the product. In such case, immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
9. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way. (SAMSUNG is not liable for problems caused by unauthorized modifications or attempted repair.)
10. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

**CAUTION**

1. Do not drop objects on the product or apply strong blows to it. Keep away from a location subject to excessive vibration or magnetic interference.
2. Do not install in a location subject to high temperature (over 50°C), low temperature (below -30°C), or high humidity. Doing so may cause fire or electric shock.
3. If you want to relocate the already installed product, be sure to turn off the power and then move or reinstall it.
4. Remove the power plug from the outlet when there is a lighting storm. Neglecting to do so may cause fire or damage to the product.
5. Keep out of direct sunlight and heat radiation sources. It may cause fire.
6. Install it in a place with good ventilation.
7. Avoid aiming the controller directly towards extremely bright objects such as sun.

8. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
9. The Mains plug is used as a disconnect device and shall stay readily operable at any time.

**FCC Statement**

Caution : Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and
2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, any cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



## IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
13. Unplug this apparatus when a card is used. Use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as powersupply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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# product introduction

## FEATURES

This product is an elegant-looking proximity reader which has the maximum read range of 10cm (4”), can be easily installed on a metal doorframe or the wall. Basically, both R1003 and R1103 use the same module with epoxy molding, which guarantees operation in any weather and environment condition. The two different bezels of two models are compatible with each other, meaning one can be replaced with the other according to the wall condition or the applicable situation. Green and red LED indicators and the Piezo buzzer ensure reliable and accurate operations.

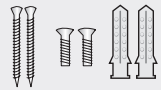
- 125KHz Proximity Reader
- ASK Modulation
- 26 bit Wiegand / RS-232 Output Format
- Control of External LED Indicators
- Control of External Buzzer
- Reverse Polarity Protection
- Weatherproof



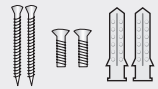
## WHAT’S INCLUDED

Check if the following items are included in the product package.

### What’s included in SSA-R1003

| | | | | |
|---|---|---|---|---|
| | |  | | |
| Bezel of SSA-R1003 | READER Module | 3.5 x 40 screws (x2)<br>3.5 x 25 screws (x2)<br>6 x 30 Plastic Anchors(x2) | Quick Guide | CD Manual |

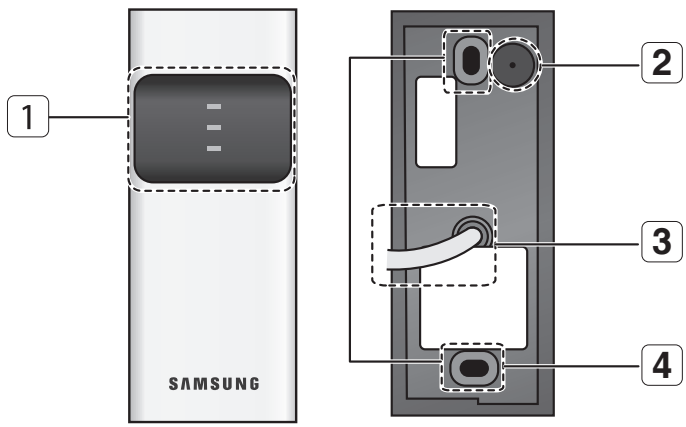
### What’s included in SSA-R1103

| | | | | |
|---|---|---|---|---|
| | |  | | |
| Bezel of SSA-R1103 | READER Module | 3.5 x 40 screws (x2)<br>3.5 x 25 screws (x2)<br>6 x 30 Plastic Anchors(x2) | Quick Guide | CD Manual |

# product introduction

## AT A GLANCE

### Front/Rear




| | | |
|---|---|---|
| 1 | **LED** | Displays the system operation status using red and green indicators. |
| 2 | **Buzzer** | Piezo buzzer. |
| 3 | **Connection Cable** | Used to connect to the power or I/O cable. |
| 4 | **Fixing Hole** | Fixing hole for wall-mounting. |

## CABLE COLOR SCHEME

| Item | Cable Color | Signal Line | Description |
|---|---|---|---|
| Power | Red | DC +12V | DC +12V supplied |
| | Black | GND | Earth-grounding for power |
| Input | Blue | Buzzer Control | BUZZER Control Input Port |
| | Yellow | LED Control | LED Control Input Port |
| Output | Green | Out Wiegand 0 | Wiegand Data 0 Output Port |
| | White | Out Wiegand 1 | Wiegand Data 1 Output Port |
| Communication | Brown | RS-232(TX) | RS-232 Transmission Output Port |
| Not used | Orange | NC | Not Connected |



## CABLE SELECTION

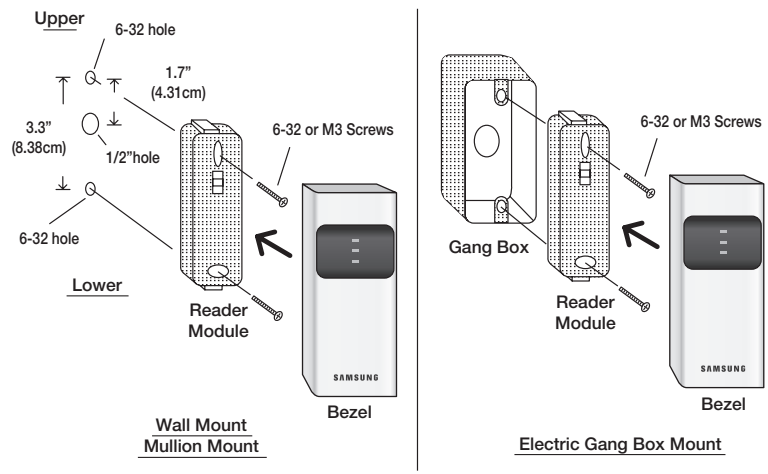
| Item | | Cable Type |
|---|---|---|
| 1 | Power (DC12V) | Belden #9409, 18 AWG 2 Conductor, Unshielded |
| 2 | WIEGAND Output<br>Buzzer Control<br>LED Control | Belden #9512, 22 AWG 4 Conductor, Shielded |
| | | Belden #9514, 22 AWG 8 Conductor, Shielded |
| 3 | RS-232 Cable | Belden #9829, 24 AWG 2-twisted pair, Shielded |

# installation and external connection

## INSTALLATION

**- Inserted in the doorframe / attached to the wall**

1. Two 6-32 or M3 holes are 3.3" (8.38 cm) away from each other vertically; between the two exists one 1/2" hole through which the reader cables are arranged. The midway hole is located 1.7" (4.31cm) down from the upper hole.
   (If the product is already installed, you can skip this step.)
2. Insert the reader cables to the midway hole and fix the reader module with two 6-32 or M3 screws.
3. Insert the reader module into the bezel and push it up until you hear a click.

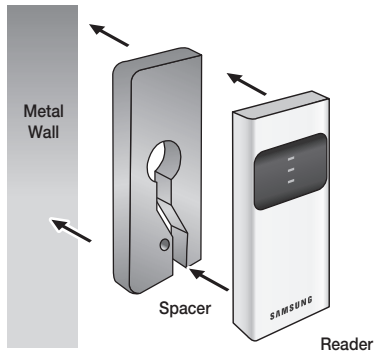


# PRECAUTIONS ON INSTALLATION

## If installing on a metal wall

If you install the reader on a metal wall, the read range may be reduced.

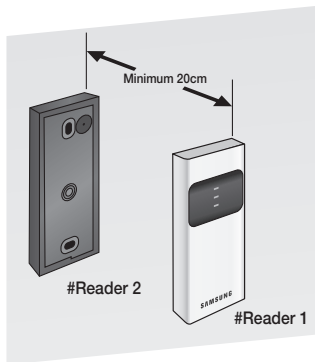
To avoid this problem, it is recommended to insert the spacer between the metal wall and the reader as shown below.



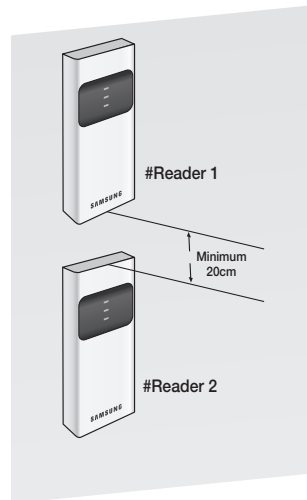

## If installing more than one reader side by side or front and back

If you install more than one reader side by side or front and back, the read range may be reduced. In this case, if you present a card to one reader, the other reader may recognize the same card, meaning both readers read the same card simultaneously.

To avoid this problem, keep at least 20 cm of space between the two readers.



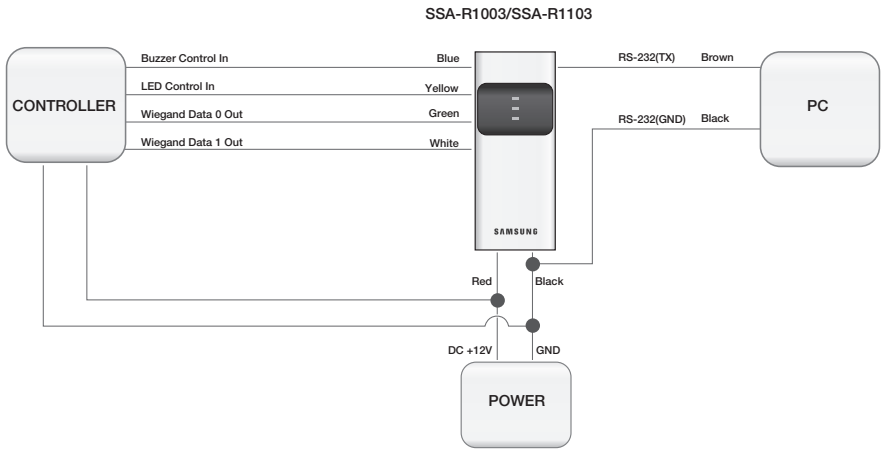

<Front and Back>




<Side by Side>

## EXTERNAL CONNECTION

### Wiring Diagram




| Item | Cable Color |
|---|---|
| Power Supply Unit | Connect the DC+12V to the red line. |
| | Connect GND to the black line. |
| Wiegand Connection | Connect the green line of the product to the Wiegand D0 input port of the controller. |
| | Connect the white line of the product to the Wiegand D1 input port of the controller. |
| LED Control | To control the LED indicators, connect the yellow line to the output port (relay) of the controller. |
| Buzzer Control | To control the built-in buzzer, connect the blue line to the output port (relay) of the controller. |
| RS-232 Connection | Connect to the COM port of the PC. (Connect pin 2 of the DB-9 connector to the brown line; connect the GND (black) line of the device to pin 5 of the DB-9 connector.) |

# initialization

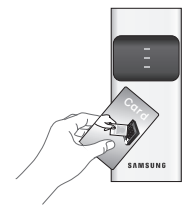
## BASIC OPERATIONS

### Initial State (when the power is supplied)

When you apply power to the reader, it will sound a beep before entering Standby with the red indicator turned on .

### Using the card

Present the card to the reader until you hear a beep and the red indicator turns green. When the reader has transferred the card data to the controller, it returns to Standby with the red indicator turned on and waits for reading the next card.




### LED Control

You can control the LED indicator of the device at your preference.

Connect the LED control input line (yellow) to the NO port of the controller relay output, and GND to the COM port.

Set the I/O of the controller so that you can change the color of the LED indicators. While the LED control is working, the green indicator stays solid.

This function not only enables you to change the color representing Standby from red to green, but it can be also applied to make various modifications according to the different I/O settings of the controller.

For more information about the I/O settings of the controller, refer to the user manual of the controller.

### Buzzer Control

You can control the buzzer of the device at your preference.

You can configure the I/O settings of the controller so that it sounds a beep. While the buzzer control is working, the product keeps sounding the beep.

The controller can use the I/O settings to set the buzzer control so that it sounds an additional beep for authorized or unauthorized access upon user authentication.

Furthermore, you can make various modifications according to the different I/O settings of the controller.

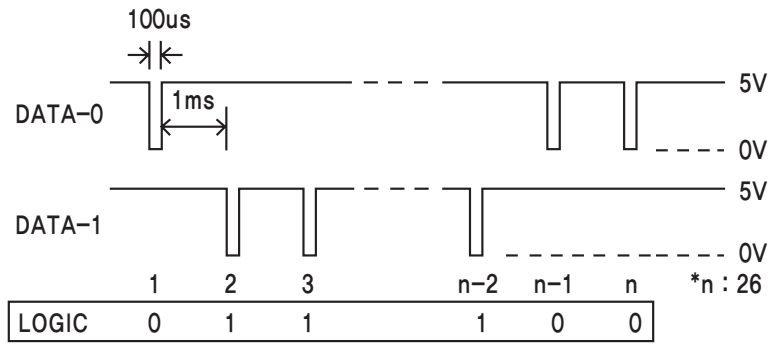
For more information about the I/O settings of the controller, refer to the user manual of the controller.

- Card reading is not available while the buzzer control is sounding the buzzer.

# output format

## WIEGAND OUTPUT

### Timing Diagram

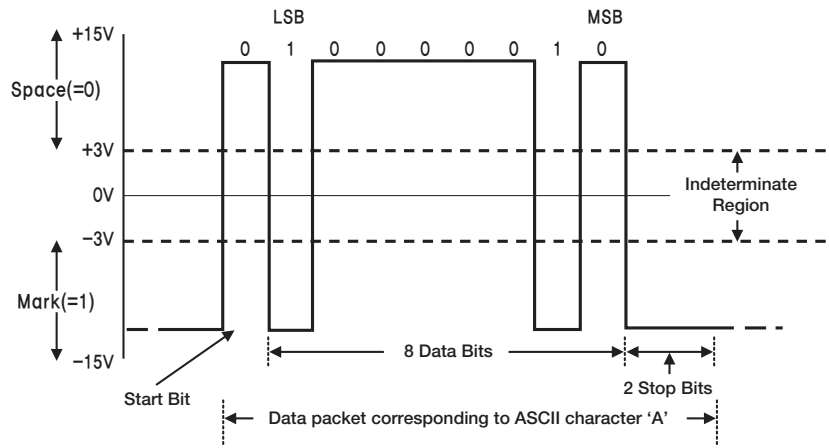



### Data Type

- Bit 1 : Even Parity (bit 2 ~ bit 13)
- Bit 2 ~ 9 : Facility Code (000 ~ 255)
- Bit 10 ~ 25 : ID Number (00000 ~ 65,535)
- Bit 26 : Odd Parity (bit 14 ~ bit 25)

## RS-232 OUTPUT

### Output Waveform




### Data Type

| | | | |
|---|---|---|---|
| Start (0X02H) | Data (8 Char) | End (0x03H) | LRC |
| START(0X02H) | DATA (1~8 Char) | END (0x03H) | LRC |

- Check the following settings:
  Baud Rate : 9600bps
  Data Bit : 8
  Parity Bit : None
  Stop Bit : 1
- LRC: This is the result of XOR operation of each byte from Start to End.

## TROUBLESHOOTING

If the product does not function properly, please see the below for trouble shooting.

| PROBLEM | SOLUTION |
|---|---|
| **My card is not read properly.** | 1) Check the rated voltage specified in the user manual and the catalog.<br>2) Check if this is a 125KHz proximity (EM format) card.<br>3) If the problem persists, contact the nearest customer service for your assistance. |
| **When I turn on the product, it sounds a beep with dimly turned on indicator.** | 1) Ensure that you are using a larger-capacity adaptor than specified in the user manual or the catalog, which should cover the rated current consumption of the reader. If you are using multiple readers that are connected to one adaptor, make sure that the adaptor should be large enough to cover the current consumption multiplied by the reader count.<br>2) Even with a large adaptor enough to supply adequate power, if the power cable is not a dedicated line (such as communication line or UPT cable), or if it's so long to cause power loss, you'd better replace it with a dedicated line or reinforce it.<br>3) If the problem persists, contact the nearest customer service for your assistance. |

# product specifications

## PRODUCT SPECIFICATIONS

| Item | SSA-R1003 | SSA-R1103 |
|---|---|---|
| **Power / Current** | DC 12V / Max.40mA | |
| **Reading Time (Card)** | 30ms | |
| **Input Port** | 2ea : External LED Control, External Buzzer Control | |
| **Output Port** | 26bit Wiegand | |
| **LED Indicator** | 2 Color LED (Red and Green) | |
| **Beeper** | Piezo Buzzer | |
| **Operating Temperature** | -30°C to +50°C | |
| **Operating Humidity** | 10% to 90% relative humidity non-condensing | |
| **Color / Material** | Silver with Black/ Polycarbonate | |
| **Dimension (W x H x D(mm))** | 47.0 x 122.0 x 26.0 | 75.3 x 122.0 x 26.0 |
| **Weight** | 130g | 150g |

### Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.
This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

### Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

SALES NETWORK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